



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/025,717

12/19/2001

David J. Doddek

01-575

8006

58982

7590

06/11/2008

CATERPILLAR/FINNEGAN, HENDERSON, L.L.P.

901 New York Avenue, NW

WASHINGTON, DC 20001-4413

EXAMINER

BHAT, ADITYA S

ART UNIT

PAPER NUMBER

2863

MAIL DATE

DELIVERY MODE

06/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/025,717
Filing Date: December 19, 2001
Appellant(s): DODDEK ET AL.

Caterpillar Inc.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/13/2007 appealing from the Office action mailed 6/14/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,553,290	Pillar	4-2003
6,141,608	Rother	10-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillar (USPN 6,553,290) in view of Rother (USPN 6,141,608).

With regard to Claim 1, Pillar (USPN 6,553,290) teaches a method for analyzing machine data, the machine data representing at least one condition of a machine, comprising the steps of:

storing said machine data in a data system; (Col. 7, lines 22-25)

defining a first testing procedure from a plurality of pre-defined owner input each associated with one or more diagnostic processes, wherein at least one of the owner inputs is associated with one or more diagnostic processes(col. 10, lines 58-65) that are different from the one or more diagnostic processes with which at least one of the other owner inputs is associated; (Col.7-8, lines 60-67 & 1-67)

processing said machine data based on said testing procedure to determine a machine exception, (Col. 5, lines 5-15) and generating a notification in the event of a machine exception. (Col. 11, lines 50-52)

With regard to Claim 2, Pillar (USPN 6,553,290) teaches selecting a test and defined parameters for said test. (Col. 8 lines 21-67, col. 9-10, lines 1-67 & 1-40)

With regard to Claim 3, Pillar (USPN 6,553,290) teaches notification is relayed to a notification device. (Col. 11, lines 50-52)

With regard to Claim 4, and 13 Pillar (USPN 6,553,290) teaches notification device is a hand held communications device. (33; figure 2)

With regard to Claim 5, Pillar (USPN 6,553,290) teaches procedure is run on a sequencer. (33; figure 2)

With regard to Claim 6, Pillar (USPN 6,553,290) teaches storing said machine data on said machine in packets; and transferring said packets via a communications network to said data system. (33, 36; See figure 2)

With regard to Claim 7, Pillar (USPN 6,553,290) teaches streaming said machine data from said machine to said data system via a communications network. (36; figure 2)

With regard to Claim 8, Pillar (USPN 6,553,290) teaches a system for analyzing machine data, the machine data representing at least one condition of a machine, comprising:

a data system configured to store machine data; (Col. 7, lines 22-25)

an owner input device configured to accept a plurality of different owner inputs, each associated with one or more diagnostic processes (col. 10, lines 58-65), wherein at least one of the owner inputs is associated with one or more diagnostic processes that are different from the one or more diagnostic processes with which at least one of the owner inputs is associated; (Col.7-8, lines 60-67 & 1-67) and

an analyzer configured to accept a procedure selected by an owner, from said plurality of owner inputs, said analyzer configured to process said machine data based upon said procedure to determine a machine exception and generate a notification in the event of a machine exception (Col. 5, lines 5-15) (Col.11, lines 50-52)

With regard to Claim 9 and 22, Pillar (USPN 6,553,290) teaches a communications network for relaying said machine data from said machine to said data system. (36; see figure 2)

With regard to Claim 10, Pillar (USPN 6,553,290) teaches a communications network comprises wireless communication means. (Col.6, lines 44-53)

With regard to Claim 11, Pillar (USPN 6,553,290) teaches a procedure comprises a test selected by said owner and at least one parameter defined by said owner and associated with said test. (Col.8 lines21-67, col.9-10, lines 1-67 & 1-40) (Col. 10,lines 58-65)

With regard to Claim 12, Pillar (USPN 6,553,290) teaches a notification device for receiving said notification via said communications network. (figure 3)

With regard to Claim 14, Pillar (USPN 6,553,290) teaches a method for analyzing machine data, the machine data representing at least one condition of a machine, comprising the steps of:

storing said machine data in a data system; (Col. 2, lines 12-14)

defining at least one testing procedure by selecting from a plurality of owner inputs, each associated with one or more diagnostic processes to be associated with said machine data, wherein at least one of the owner inputs is associated with one or more diagnostic processes that are different from the one or more diagnostic processes with which at least one of the owner inputs is associated; (Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40) (Col. 10,lines 58-65)

processing said machine data based upon said procedure (Col. 5, lines 5-15)

determining a machine exception from said procedure; (Col. 6, lines 54-56) and
generating a report in the event of said machine exception. (Col.11, lines 50-52)

wherein said defining step includes the steps of:

selecting at least one test to be associated with said machine data; (Col. 10,lines 58-65)

defining at least one parameter associated with said at least one test; (Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40)

defining at least two limits for at least one parameter, wherein machine data that exceeds at least one of the limits is considered a machine exception; (Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40) (see measurement range portion of chart) and

wherein said process step includes running said at least one test in relation to said machine data (col. 10, lines 40-45)

With regard to Claim 16 Pillar (USPN 6,553,290) teaches an analyzer based upon said procedure, which is defined by said owner, performs processing step. (Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40) (Col. 10,lines 58-65) (15;figure 2)

With regard to Claim 17, Pillar (USPN 6,553,290) teaches a system for analyzing machine data, the machine data representing at least one condition of a machine, comprising:

a data system configured to store machine data; (Col. 7, lines 22-25) and
an owner input device configured to accept a plurality of different owner inputs, each associated with one or more diagnostic processes, wherein at least one of the owner inputs is associated with one or more diagnostic processes that are different from the one or more diagnostic processes with which at least one of the owner inputs is associated; (Col.7-8, lines 60-67 & 1-67) (Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40) (Col. 10,lines 58-65)

wherein the owner input device is configured to accept owner input to:
select at least one test to be associated with said machine data; ((Col. 10,lines 58-65)

define at least one parameter associated with said at least one test; Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40)

define at least two limits for at least one parameter, wherein machine data that exceeds at least one of the limits is considered a machine exception; (Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40) (see measurement range portion of chart) and

an analyzer configured to accept a procedure selected by an owner, from said plurality of owner inputs, said analyzer configured to process said machine data based upon said procedure to determine a machine exception (Col. 5, lines 5-15) (Col.11, lines 50-52) and generate a notification in the event of a machine exception (Col.11, lines 50-52) and said analyzer generating a report in the event of said machine exception. (Col.11, lines 50-52)

With regard to Claim 18, Pillar (USPN 6,553,290) teaches: a communications network for relaying said machine data from said machine to said data system. (36;see figure 2)

With regard to Claim 19, Pillar (USPN 6,553,290) teaches the procedure is comprised of at least one test selected by said owner, said test having at least one associated parameter defined by said owner. (Col.8 lines 21-67, col.9-10, lines 1-67 & 1-40) (Col. 10,lines 58-65)

Pillar does not appear to teach defining the test procedure includes conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process.

Rother teaches defining the test procedure includes conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Pillar reference to include defining the test procedure includes conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process (col.1, lines 45-51) taught by Rother in order to guide the user in the selection of test to be performed and minimize the performance of needless tests. (col. 2, lines 4-6)

(10) Response to Argument

Appellant argues that the prior art of record does not teach “defining the test procedure includes conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process.”

Appellant's claim 1 recites:

A method for analyzing machine data, the machine data representing at least one condition of a machine, comprising the steps of:

storing said machine data in a data system; (Col. 7, lines 22-25)

defining a first testing procedure from a plurality of pre-defined owner input each associated with one **or** more diagnostic processes, wherein at least one of the owner inputs is associated with one **or** more diagnostic processes(col. 10, lines 58-65) that are different from the one **or** more diagnostic processes with which at least one of the other owner inputs is associated; (Col.7-8, lines 60-67 & 1-67)

processing said machine data based on said testing procedure to determine a machine exception, (Col. 5, lines 5-15) and generating a notification in the event of a machine exception. (Col. 11, lines 50-52)

wherein defining the test procedure includes conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process.

A summary of the claim requires that machine related data is stored, a first test procedure is defined from a plurality of different predefined owner inputs associated with at least one diagnostic process, using the test procedure to determine whether the machine is running properly and generating a notification in the event the machine is not running properly, and defining the first test procedure includes conditioning one diagnostic process to execute automatically based on the results of one other diagnostic process.

A careful reading of the claim illustrates that only one test procedure is required with a plurality of diagnostic processes to be run. The diagnostic processes may be unrelated and the claim only requires that one diagnostic process finish before another starts. Referring to the portion of the claim that recites "based on the results", this portion of the claim does not require the results of a first diagnostic process be incorporated into the next diagnostic process to be run. The portion of the claim that recites "at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process" only requires that the initial diagnostics be

Art Unit: 2863

complete before continuing onto the next diagnostic process as is illustrated from appellant's specification:

[0028] Returning to FIG. 3, as seen in control block 325, the owner determines if additional tests need to be defined. If so, control returns to control block 310 so that another test may be selected and associated parameters defined. For example, if the owner defined a test for oil pressure with a set of associated parameters, the owner may wish to define a second, unrelated, test for engine speed (as long as engine speed is one of the pre-defined test types). In addition, if the owner has defined one test for oil pressure with a first set of associated parameters, the owner may define a second test, also for oil pressure, with a second set of associated parameters. Once the owner has defined all desired tests, control continues to control block 330.

As mentioned in appellants specification if a second test (diagnostic process) is unrelated to the first test then clearly the results of the first test provide no bearing on the execution of the second test. Examiner has summarized/explained appellants claim in order to illustrate how broadly the invention has been claimed and illustrate that appellant's arguments are directed to a much narrower interpretation of the claim language then required.

Another argument that appellant raises is that in claim 14 the limitation of "defining at least two limits for at least one parameter..." is not taught by the prior art of record. The term limit is defined as: something that bounds, restrains, or confines". A range is defined as "a sequence, series, or scale between limits". Clearly, it would be within reasonable interpretation for one of ordinary skill in the art to interpret the range taught by Pillar (USPN 6,553,290)(col. 8-10) (also can be seen in the figure below) as being equivalent to upper and lower limits. As the dictionary definition states that a range

Art Unit: 2863

is a scale between limits. The figure relied upon clearly shows a range with two limits (upper and lower).

Test	Test Description and Application	Exemplary Measurement Range(s)
<u>ENGINE TESTS</u>		
Engine RPM (AVE)	Measures average speed of engine cranked.	50-5000 RPM
Engine RPM, Cranking SI only	Measures cranking RPM. Performed with ignition ON. Inhibit spark plug firing allowing cranking without starting.	50-1500 RPM
Power Test (RPM/SEC)	Measures engine's power producing potential in units of RPM/SEC. Used when programmed engine constants and corresponding Vehicle Identification Number (VIN) have not been established.	500-3500 RPM/s
Power Test (% Power)	Measures percentage of engine's power producing potential compared to full power of a new engine.	0-100%
Compression Unbalance (%)	Evaluates relative cylinder compression and displays percent difference between the highest and the lowest compression values in an engine cycle.	0-99%
<u>IGNITION TESTS</u>		
Dwell Angle (TDC)	Measures number of degrees that the points are closed.	10-72 @ 2000 RPM
Points Voltage (VDC)	Measures voltage drop across the points (points positive to battery return).	0-1 VDC
Coil Primary	Measures voltage available at the coil positive terminal of the operating condition of the coil.	0-32 VDC
<u>FUEL/AIR SYSTEM TESTS</u>		
Fuel Supply Pressure (psi)		0-100 psi
Fuel Supply Pressure (psi)	This test measures the outlet pressure of the fuel pump.	0-10 psi 0-30 psi 0-100 psi 0-300 psi
Fuel Return Pressure (psi)	Measures return pressure to detect return line blockage, leaks, or insufficient restrictor back pressure.	0-100 psi
Fuel Filter Pressure	Detects clogging via opening	PASS/FAIL

A summary of each of appellants arguments with responses to those arguments appear below.

1)Appellants argue that Pillar and Rother fail to establish a prima facie case of obviousness.

1a) Examiner maintains the rejection under 35 USC 103 as no specific reason has been given as to why Pillar and Rother fail to establish a prima facie case of obviousness.

2)The Examiner has not fulfilled his duty of explaining why the combination of the teachings is proper.

2a) The combination of the teachings is proper because each and every element has been disclosed in the combination. Further the Rother reference provides motivation as to why one of ordinary skill in the art at the time of the invention would combine the references to arrive on the claimed invention. Please see rejection.

3) Examiner has not provided legally sufficient evidence to show that all the claimed subject matter is disclosed either implicitly or explicitly.

3a) It is the Examiner 's position that legally sufficient amount of evidence has been presented in order to show that all the claimed subject matter is disclosed. Please see rejection.

4) The Examiner has failed to provide a legally proper reason as to why one of ordinary skill in the art would have combined the references in the manner suggested in the final office action.

4a) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Pillar reference to include defining the test procedure includes conditioning at least one diagnostic process to execute automatically based on the

Art Unit: 2863

results of at least one other diagnostic process (col.1, lines 45-51) taught by Rother in order to guide the user in the selection of test to be performed and minimize the performance of needless tests. (col. 2, lines 4-6)

5) Examiner has not met his burden of establishing a prima facie case of obviousness with respect to claim 1,8,14, and 17.

5a) With respect to claims 1,8,14 and 17 examiner maintains the rejection under 35 USC 103 as no specific reason has been given as to why Pillar and Rother fail to establish a prima facie case of obviousness.

6) The examiner has misinterpreted the disclosure of Rother and misconstrued appellant's claims. Proper construction of appellants claim does not read on the disclosure of Rother or even on the alleged disclosure of Rother as interpreted by Examiner.

6a) Examiner maintains the rejection under 35 USC 103 as no specific reason has been given as to why Pillar and Rother have been misinterpreted and why the claims have been misconstrued.

7) Rother does not disclose or suggest a series of tests execute (or are even conditioned to execute) based on manufacturer's previous diagnosis experience. Instead Rother disclosed listing (not executing) tests in a particular order based on manufacturer's previous diagnostic experience.

7a) Below is a citation of Rother Col. 8, lines 23-37. This section of Rother clearly illustrates that the reference is capable of executing and does execute multiple tests.

The system initially, at screen display 65, presents the user with a menu 66 of applicable system tests, as illustrated in
15 FIG. 4. The technician selects the desired test from the menu and the system highlights the applicable ones of the module icons 44-48. The user selects a highlighted module and an associated test is launched. If the user returns to the system testing screen of FIG. 4, any test that has been previously
20 completed will be shown in a different color. This provides a mechanism to track which tests have been performed in this diagnostic session. The system prompts the user during the performance of each test and also collects the test data and, at the completion of the test, evaluates the data and
25 presents the user with diagnostic conclusions. Once the test is completed, the system will indicate this fact, so that it is not inadvertently repeated.

8) The tests in the Rother reference are not executed or even conditioned to execute based on manufacturer's previous experience.

8a) The claims do not require that the tests execute based on manufacturer's previous experience. The claims only require that a first test be executed and some sort of results be generated before a second test may begin. Appellant's own specification disclose that the tests maybe unrelated. Therefore, the claim in light of appellant's specification only requires that one test is executed and completed. Based on the completion the next one may start. The claim **does not** require that the results from the first diagnostic test procedure be incorporated into the second diagnostic test procedure.

Although the claims in light of appellants specification do not require the diagnostic test to be based on anything beyond completion of a previous test. Rother does teach executing based on manufacturer's previous experience. Please see the Rother col. 3, lines 20-33 as cited below.

[0028] Returning to FIG. 3, as seen in control block 325, the owner determines if additional tests need to be defined. If so, control returns to control block 310 so that another test may be selected and associated parameters defined. For example, if the owner defined a test for oil pressure with a set of associated parameters, the owner may wish to define a second, unrelated, test for engine speed (as long as engine speed is one of the pre-defined test types). In addition, if the owner has defined one test for oil pressure with a first set of associated parameters, the owner may define a second test, also for oil pressure, with a second set of associated parameters. Once the owner has defined all desired tests, control continues to control block 330.

Appellant's specification

A fundamental aspect of the invention is that it permits a fault-based drivability diagnosis of a vehicle. In such a fault-based mode of operation, the system essentially presents the user with a menu of problems indicated, e.g., by symptoms or service codes, and the user selects those problems which are pertinent to the vehicle under test. Based upon the selected faults, the system then presents the user with a list of tests to be performed to diagnose the cause or causes of the faults. The tests are listed in the order in which they would most likely be effective in diagnosing the vehicle faults, based upon the manufacturer's information and previous repair and diagnosis experience with this type of vehicle.

Rother Col. 3, lines 20-33

9) Manufacturers previous experience does not constitute "conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process.

9a) The claim does not require the detail that appellant is arguing. Please see argument 8a. Also the cited portion of Rother (col. 1, lines 45-49) clearly shows automatically executing multiple test sequences.

Platform products, e.g., engine analyzers, are typically high-end systems capable of performing a variety of different types of tests. They may provide the user with automatic test sequences that systematically test the vehicle in a particular order and then provide diagnostic conclusions based on the test results. Platform products, such as engine analyzers, are usually focused on particular types of problems or particular vehicle systems. They may take considerable time to hook up all the necessary leads and perform the comprehensive tests, and the user must decide which product to use and how the test data should be integrated into an overall diagnosis.

45

50

55

10) Appellants recitation of "conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process."

When read in light of the specification does not encompass configuring a test to execute

based upon the manufacturer's previous diagnosis experience and thus does not read on Rother

10a) The claim does not require the detail that appellant is arguing. As seen below the second diagnostic process maybe unrelated to the first therefore the actual numerical results would not be needed in order to execute the second unrelated test. The claim only requires that one diagnostic process be complete before automatically executing a second diagnostic process.

[0028] Returning to FIG. 3, as seen in control block 325, the owner determines if additional tests need to be defined. If so, control returns to control block 310 so that another test may be selected and associated parameters defined. For example, if the owner defined a test for oil pressure with a set of associated parameters, the owner may wish to define a second, unrelated, test for engine speed (as long as engine speed is one of the pre-defined test types). In addition, if the owner has defined one test for oil pressure with a first set of associated parameters, the owner may define a second test, also for oil pressure, with a second set of associated parameters. Once the owner has defined all desired tests, control continues to control block 330.

11) Examiner improperly construes the claim term "other diagnostic process" to cover ANY diagnostic process, even those performed outside the context of the testing procedure, such as during manufacturer's previous diagnostic experience

11a) Again the claims only require that the previous test be executed and completed before another test procedure be initiated.

According to appellant's specification the "other diagnostic process" maybe a second unrelated test. So it maybe any test within the predefined test types i.e. the chart (pillar reference) shown above clearly illustrates numerous tests that maybe executed. Further Rother in Figure 3 (test procedure section) clearly shows numerous tests that maybe incorporated into the testing procedure. (see below)

Art Unit: 2863

FIG. 3

VEHICLE IDENTIFICATION	TEST ANALYSIS	MANUAL TESTING	INFORMATION	SHOP MANAGEMENT	SYMPTOMS	COMPONENT/SYSTEM	FAULT CODES	TEST PROCEEDURE	RANK
BATTERY GOES DEAD	40				SYMPTOM			ACCESS VEHICLE FAULT CODES	10
NO START, NO OR SLOW CRANK					NO START, CRANKS OK		LEAKING SUPCHGR INTAKE GAS	FAULT CODE RETRIEVAL	8
NO START, CRANKS OK					HARD START, SLOW CRANK		INJECTOR DRIVER/INJ FLOW	QUICK TIP	7
HARD START, SLOW CRANK					HARD START, CRANKS OK		VACUUM LEAK	FUEL INJECTOR-MFI	5
HARD START, CRANKS OK					ENG STARTS AND DIES		DEFECTIVE PCM BOARD	VACUUM LEAK	4
ENG STARTS AND DIES					ENG DIES AT IDLE/DECEL/BRKG		EGR SYSTEM	QUICK TIP	4
ENG DIES AT IDLE/DECEL/BRKG					ENG DIES AT ACCEL/CRUISE		IAC CIRCUIT	EGR	4
ENG DIES AT ACCEL/CRUISE					HESITATION/STUMBLD/SAG		IGNITION SYSTEM	IDLE AIR CONTROL SOLENOID	4
HESITATION/STUMBLD/SAG					MISFIRE		MAF CIRCUIT	ENGINE RUNNING-DIS AND MFI	4
MISFIRE					RUNS ROUGH		GROUNDING OR BROKEN MOUNT	MASS AIR FLOW SENSOR	4
RUNS ROUGH					IDLE SPEED LOW		THROTTLE BORE COKING	QUICK TIP	4
IDLE SPEED LOW					IDLE SPEED HIGH		TP CIRCUIT	QUICK TIP	3
IDLE SPEED HIGH					IDLE SPEED HUNTING		INCORRECT FUEL PRESS/VOLUME	THROTTLE POSITION SENSOR	3
IDLE SPEED HUNTING					LACK OF POWER/SLUGGISH		POOR FUEL QUALITY	FUEL DELIVERY-MFI	3
LACK OF POWER/SLUGGISH					SURGES/CHUGGLES		TCC WILL NOT DISENGAGE	QUICK TIP	2
SURGES/CHUGGLES					POOR FUEL ECONOMY		COMPRESSOR/VALVE TIMING	QUICK TIP	2
POOR FUEL ECONOMY					EXHAUST ODOR/BLACK SMOKE			ENGINE MECHANICAL-DIS	2
EXHAUST ODOR/BLACK SMOKE					BACKFIRE THRU INTAKE/EXH				1
BACKFIRE THRU INTAKE/EXH									

12) The "other diagnostic process" is one executed as part of the same testing procedure, and not some previously conducted diagnostic process with no direct correlation to the present testing procedure. Since the construction of claim 1 is inconsistent with appellant's specification the rejection of claim 1 should be reversed

12a) From the cited portion of Rother below it is clear that the user with automatic test sequences that *systematically* test the vehicle in a particular order i.e. 1)test 1 performed and completed 2) test 2 performed...etc. Also as previously mentioned the tests **do not** have to be related according to appellant's specification.

Platform products, e.g., engine analyzers, are typically high-end systems capable of performing a variety of different types of tests. They may provide the user with automatic test sequences that systematically test the vehicle in a particular order and then provide diagnostic conclusions based on the test results. Platform products, such as engine analyzers, are usually focused on particular types of problems or particular vehicle systems. They may take considerable time to hook up all the necessary leads and perform the comprehensive tests, and the user must decide which product to use and how the test data should be integrated into an overall diagnosis.

45

50

55

13) Examiner has not provided any teaching, suggestion, motivation or any other reason to combine the references in the manner suggested in the final office action

13a) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Pillar reference to include defining the test procedure includes conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process (col.1, lines 45-51) taught by Rother

in order to guide the user in the selection of test to be performed and minimize the performance of needless tests. (col. 2, lines 4-6)

14) Examiner uses portions of the background section of the Rother disclosure in order to reject appellant's claims. The cited portion of the background section teaches away from the using systems disclosed in that section by pointing out disadvantages of using the systems disclosed in that section

14a) The cited portion used for motivation is directly related to systematically testing the vehicle in a particular order. The disadvantages pointed out by Rother have nothing to do with why one would automatically perform test sequences in a particular order. The disadvantages are directed towards the physical setup of the system described in the background section. However, the same procedure is used as can be seen in Rother's specification and the improvement is not directed towards the procedure which is consistent in the background as well as the detailed description section.

15) Rother does not disclose "conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process" therefore the suggested combination would not result in the claimed subject matter.

15a) Clearly the cited portion below teaches conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process therefore the combination would result in the claimed invention.

Platform products, e.g., engine analyzers, are typically high-end systems capable of performing a variety of different types of tests. They may provide the user with automatic test sequences that systematically test the vehicle in a particular order and then provide diagnostic conclusions based on the test results. Platform products, such as engine analyzers, are usually focused on particular types of problems or particular vehicle systems. They may take considerable time to hook up all the necessary leads and perform the comprehensive tests, and the user must decide which product to use and how the test data should be integrated into an overall diagnosis.

16) The benefits cited by examiner include guiding the user in the selection of tests to be performed and minimizing the performance of needless tests. These benefits do not provide any reason to modify the Pillar to include "conditioning at least one diagnostic process to execute automatically based on the results of at least one other diagnostic process"

16a) The Rother reference teaches performing automatic test sequences in a particular order. That order is based on previous experience. The reason for placing them in a particular order is to diagnose the problem with a minimal amount of tests and avoid needless tests. So one of ordinary skill in the art at the time of the invention would be motivated to perform all the desired tests shown in the Pillar reference in a particular order based on previous experience in order to avoid conducting needless test and to avoid having to manually perform each test i.e. automate the process.

17) The claimed feature provides customizable automation and does not guide users in the selection of test or minimize the performance of needless tests. Therefore

the benefits of Rother do not correspond to the feature of customizable automation and therefore cannot provide motivation for modifying the Pillar disclosure.

17a) The claim only requires that one selected test be performed and completed and a second test be executed. Therefore the combination of the references yields the claimed invention. Further the Rother reference (see below) teaches that that the user may perform the test in any order desired and reads on appellant's "customizable argument" even though the claim does not require it.

Once the symptom or symptoms have been selected and the associated recommended test procedures displayed, the user can then select one of the displayed test procedures, and the system will then launch or initiate that procedure. While 55 the screen display 39 lists a recommended order for performing listed tests, the user is free to perform the tests in any order desired.

18) Appellant challenged examiners motivation for the suggested combination . examiner responded with citations of case law. Examiner seems to suggest that there is a legally sufficient motivation to combine Rother with pillar that one of ordinary skill in the art would glean from these references and/or the general knowledge of a skilled artisan.

18a) In response to appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Art Unit: 2863

It should be noted that what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." 441 F.3d 987 that obviousness could be found on the basis of a "problem that was within the general knowledge of those of ordinary skill in the art," 424 F.3d 1322

It should also be noted that it has been held that broadly providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art. In re Venner, 120 USPQ 192.

Although automating a series of tests would be obvious to one of ordinary skill in the art and only require common knowledge. Motivation has been provided in the prior art of record and therefore more than the legally required amount of evidence has been presented. The rejection is deemed proper for the aforementioned reasons..

19) claim 8 should be reversed for the same reasons as those discussed with respect to claim 1

19a) Please see Examiners response to arguments directed towards claim 1 above.

20) Examiner alleges that the measurement range portion of the chart meets the feature of defining at least two limits for the at least one parameter. The chart shows acceptable measurement ranges for a number of parameters. The chart does not indicate multiple limits utilized simultaneously for any of the parameters.

20a) The chart in Col. 8 lines 21-65 clearly show a range with two limits 50(lower limit) & 5000(upper limit) RPM used for the same test Engine RPM (AVE). Therefore

Art Unit: 2863

appellant's claim limitation clearly reads on the chart taught by Pillar as shown in the chart below. Also see Examiners previous argument regarding limits which includes the dictionary definitions of the terms "limit" and "range".

Pillar 6,553,290 (Col. 8, lines 21-65)

Test	Test Description and Application	Exemplary Measurement Range(s)
ENGINE TESTS		
Engine RPM (AVE)	Measures average speed of engine crankshaft.	50-5000 RPM
Engine RPM, Cranking Si only	Measures cranking RPM. Performed with ignition ON, inhibit spark plug firing allowing cranking without starting.	50-1500 RPM
Power Test (RPM/SEC)	Measures engine's power producing potential in units of RPM/SEC. Used when programmed engine constants and corresponding Vehicle Identification Number (VIN) have not been established.	500-3500 RPM/s
Power Test (% Power)	Measures percentage of engine's power producing potential compared to full power of a new engine.	0-100%
Compression Unbalance (%)	Evaluates relative cylinder compression and displays percent difference between the highest and the lowest compression values in an engine cycle.	0-50%
IGNITION TESTS		
Dwell Angle (TDC)	Measures number of degrees that the points are closed.	10-72 @ 2000 RPM
Points Voltage (VDC)	Measures voltage drop across the points (points positive to battery return).	0-1 VDC
Coil Primary	Measures voltage available at the coil positive terminal of the operating condition of the coil.	0-32 VDC
FUEL/AIR SYSTEM TESTS		
Fuel Supply Pressure (psi)		0-100 psi
Fuel Supply Pressure (psi)	This test measures the outlet pressure of the fuel pump.	0-10 psi 0-30 psi 0-100 psi 0-300 psi
Fuel Return Pressure (psi)	Measures return pressure to detect return line blockage, leaks, or insufficient restrictor back pressure.	0-100 psi
Fuel Filter Pressure	Detects clogging via opening	PASS/FAIL

21) Pillar does not disclose an operator selecting or a system configured to accept owner input to select “at least two limits for the at least one parameter” as recited in claim 14 and 17

21a) As shown below, Pillar (col.10 lines 58-65) discloses a menu of various tests from which an operator can chose from. The test(s) correspond to the chart below (Col. 8, lines 21-65) which teaches a range. By selecting for example Engine RPM (AVE) test you would also select the range for the test i.e. 50-5000 RPM. The range clearly shows two limits 50 & 5000 RPM.

As step 102, once the vehicle diagnostic option is selected, the display 19 displays a menu of various tests that are available to the operator, and the operator is prompted to select a test from the test menu. Again, the list of options may comprise dozens of options, such as some or all of those listed above, and/or tests other than those listed above, and the operator can scroll through the menu and selected the desired option.

Pillar 6,553,290 (Col. 10 lines 58-65)

22) The ranges shown in the Pillar reference are simply exemplary ranges where such a parameter is likely to fall. There is no disclosure in Pillar that these upper and lower range numbers constitute limits and that "machine data that exceeds at least one of the limits is considered a machine exception"

22a) As mentioned above the dictionary definition of a range is “scale between limits”. It can be clearly seen from the chart in Col. 8-10 of Pillar each measurement range corresponds to a certain parameter. Since a range by definition is a scale within limits it is well within reason to interpret the upper and lower limits of the ranges to be equivalent to that as claimed by appellant. Further a limit by definition is “something that bounds, restrains, or confines”. If the parameter is outside of these bounds then it is

within reasonable interpretation to conclude that the machine using these limits is not functioning properly.

23) Dependent claims 2-7,9-13,16,18 and 19 depend from 1,8,14, and 17 and are therefore allowable for at least the same reasons that the respective claims from which they depend are allowable.

23a) Dependent claims 2-7,9-13,16,18 and 19 are not allowable in view of examiners remarks with regards to claims 1,8,14 and 17 for at least the same reasons that the respective claims from which they depend are NOT allowable.

In light of the evidence presented, the 103 rejections are proper, are being maintained and should be sustained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Aditya Bhat/
Examiner, Art Unit 2863

/John E Barlow Jr./
Supervisory Patent Examiner, Art Unit
2863

Conferees:

/John E Barlow Jr./

John Barlow,

Application/Control Number: 10/025,717
Art Unit: 2863

Page 28

/David S Blum/

David Blum

TQAS Appeal Specialist, TC 2800